

वीरमं

"V" Ran Security Systems
(Group Project)

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'V' RAN Security System.

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தோயல் கல்தூதி ௨/௪ 2004

Contents

Introduction	1
Objective	2
Privileges	3
Resources	5
Specialities	7
Time Frame	9
THE SUMMERY	10
How to Unlock?	11
System Diagram	12
How the system Functions	13
Main System Circuit	
Card Drive	
Key Pad	
The Circuit Diagram	
The Basic of 'AND' gates	16
We thank you all...	18
Reference	19
Notes	20

For 'Manual CD' and demonstration of the system ask one of our Group Members.

Introduction

Our product/project is a fully functional, high performance security system, which includes card with pinnumbers as a special feature.

சிறுசெல்

எமது தயாரிப்பு / செயற்குறி சிறுசெல் இது முழுமையான செயற்குறி அமைப்பு. இது செயல்திறமை அதிகமாக கொண்ட இது பரந்தளவில் பயன்படுத்தப்படும். இது இது விலை சம்பந்தம் குறைவு குறிப்பிடக்கூடியதாக கொண்ட அமைப்பை குறிப்பிடலாம்.

Objective

The main objective of our project crew is to produce a high class security system, which included cards with their own pin-numbers. Our device has got its own flexibility to connect any other security device such as an electric fence with it.

குறிக்கோள்

எமது செயற்குறிப்புகளின் நோக்கமாக குறிக்கோளாக இருக்கிறது, 30 டைட்டி மருமய்ய வசிகரண வசிகரணமாகும் குறிப்புகள் சட்டகமாக நெருங்குதல் 30 மருமய்ய வசிகரண சட்டகமாக இருக்கிறது. எமது நோக்கமாகும் மருமய்ய வசிகரண நெருங்குதல் குறிப்புகள் மருமய்ய வசிகரண நெருங்குதல் மருமய்ய வசிகரண நெருங்குதல்.

Privileges

Our Product's performance is high quality, but it costs a low amount to build, comparing to similar products in market.

The high sensitive parts used with our product ensure uninterrupted functioning.

Our device can be used in shops, houses, offices and many ~~other~~ other places.

This can be used not only for security purposes but for many other need, as our main board can be modified simply and easily.

தண்ணீர்

எழுது துறியுள்ள இவ் வடிவம் உயர்ந்த
உடையதாயும், துறியுள்ளதாயும், எழுது
இதுபோன்ற வேறு துறியுள்ளதாயும்
பெரியதாயும், மலையாளம் எழுது
36 வரை துறியுள்ளதாயும்.

பிப்ர 2 ஸ்கூலில் இருந்து படுக்கை பரிசீலனை
2 வாரங்கள் இரவு உணவு உணவு உணவு உணவு
பயிற்சி.

எனது குழந்தையை மூலம் வீடு
அருகிலேயே குரகம் மல இடத்தில்
பாவிக்கொடுக்க.

இது மறுமலர்ச்சி ஆகவரும் மறுமலர்ச்சி
மேலும் மறுமலர்ச்சி இது மலர்ச்சி
மலர்ச்சி மலர்ச்சி மலர்ச்சி.

Resources

The below listed equipments and parts are mainly used for making our device

- * CMOS 4081, quad 2input "And" gate IC
- * Various capacitors, resistors, diodes etc.
- * Multi purpose circuit board.
- * Power supply units
- * Foil papers
- * Used - Non functional CD-Rom Drive.
- * Plastic Cards
- * Stainless steel pins
- * Other Circuit making equipments.
- * Casing and wires.

பயன்படுத்திய உரைபகுதி

கீழே 27க்கும் மேற்பட்ட பெயர்களை எழுது உரையில்
முக்கியமானவைகளைக் குறிப்பிடுக.

- * கீமோஸ் 4081, இவர்களுக்கு உன்னியல் அன்:
அதுவெனவேண்டும் என்று
- * வேவ்வேறுவது கருடாண், ரொண்டாண்டி,
இவ்வாண் உடைய இவற்றினையென்பதுகண்
நெய் கருவையான பெயர்களை.
- * மய்யக அந்நுப்பகை
- * மின் வந்தென்படுதி
- * அதுவெனியல் அந்நான்
- * மனவித்த, மனைய இவ்வாண்டு உன்னியல்
- * மிளந்தித்த அபகை
- * துடுவின் உன்கை
- * வெனியுண்டு, வந்தான்.

Specialities

- * Internal power supply units ensure continuous functioning of the system in case of power failure.
- * An alarming unit will be switched on if any one tries to open the casing of the device (Internal Alarm Unit)
- * All the sub devices used are combined as one set.
- * The card and the pin number ensure double security for the system.
- * 15 V 'Main System circuit' gives the ability of functioning in internal power supply.

29 சேட துண்டுகள்

- * உங்கள் பின்வழக்கானால் எழுது தெரிந்துகொள்ளுங்கள்
நெய் நெய்யில் 2.5% திணிவு பம்பாய்
கிணர் நெய்யில் 2.5% திணிவு பம்பாய்
கிணர் பின்வழக்கானால் எழுது தெரிந்துகொள்ளுங்கள்
- * எழுது தெரிந்துகொள்ளுங்கள் 2.5% திணிவு பம்பாய்
நெய்யில் 2.5% திணிவு பம்பாய்
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- * எழுது தெரிந்துகொள்ளுங்கள் 2.5% திணிவு பம்பாய்
2.5% திணிவு பம்பாய்
- * எழுது தெரிந்துகொள்ளுங்கள் 2.5% திணிவு பம்பாய்
2.5% திணிவு பம்பாய்
- * 15 V 'பிளாஸ் எழுது' 2.5% திணிவு பம்பாய்
2.5% திணிவு பம்பாய்

Time Frame

June	2002	Selecting the type of the project
July	2002	Selecting the project and title
August	2002	Collecting the needed knowledge from books, an websites, magazines, etc
September	2002	Collecting the needed resources
October	2002	} Final Correcting and Building of the Mainboard
November	2002	
December	2002	
January	2003	} Building of the Key Pad, Card Drive, Power supply unit and the alarming part.
February	2003	
March	2003	
April	2003	Joining all the units together
May	2003	Testing the unit and preparing the report

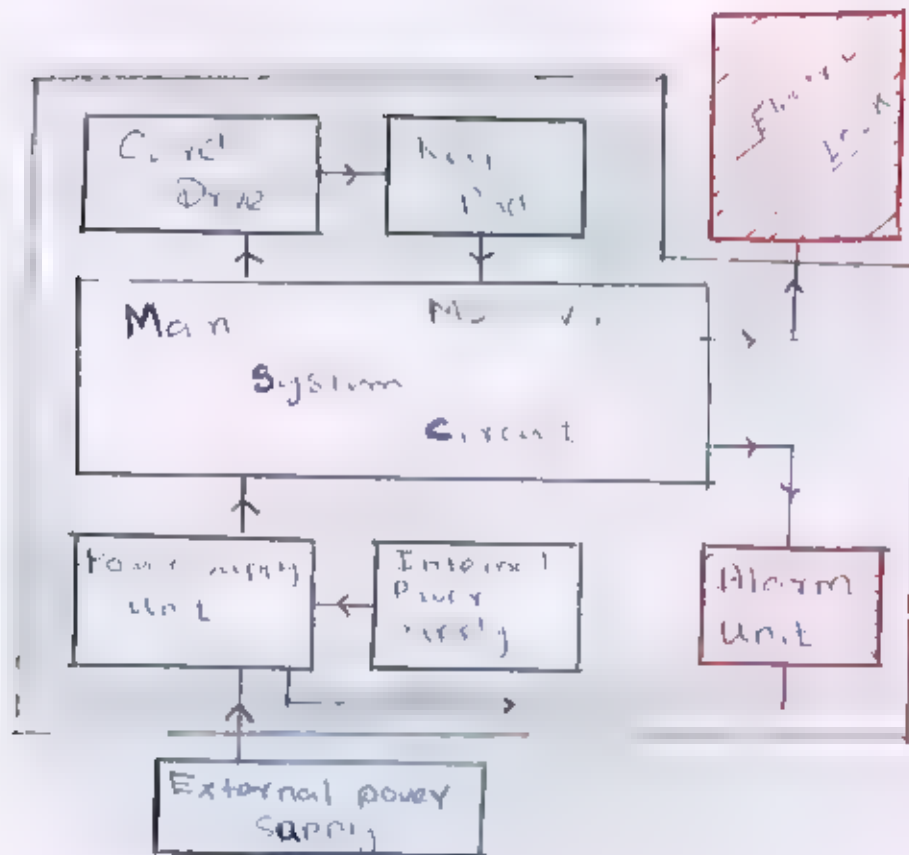
THE Summary

- First we got the idea of doing something on electronics
- Then we decided to ~~do~~ make an electronic lock.
- We studied about the 'gates' from some book with the help of Mr. F.A. Faiz.
- We got this IC and the details of its functioning by reading some books and from the software "Schematic Library"
- We designed the main system circuit.
- Mr. Ron J, a German Engineer helped us to do the resetting part of our ~~M-S-E~~ Main System circuit. We got touched with him when we were chatting on an educational website
- We used 'PCB Express.' and 'Schematic Express.' to design our circuit, with the help of Mr. F.A. Faiz.

How to Unlock?

- Insert the card into the Card Drive.
- Type the correct pin number of the card given on the Key Pad.
- The data through the card drive and keypad goes to the M.S.C
- If the pin number you have typed match with the one of your card, then the M.S.C send the signal to Unlock the lock.
- If the pin number doesn't match, then the alarm rings.
- The M.S.C will be reset if you ~~wrote~~ type a wrong number. So you will have to retype the number.
- By chance if the Alarm doesn't switch off, you will have to press the reset button ~~before~~ before retyping the pin number.

System Diagram



How the system functions?

I. Main System Circuit (M-S-C)

The IC is a quad 2 input 'And' gate, a CMOS 4081. These gates produce a High output, when both the inputs are High. When the Key wired to 'E' is pressed, current through R1 and D1 switches Q5 on. The relay energizes, and Q5 is 'latched On' by R8. Thus pressing a single Key sets the Alarm.

The alarm will switch off and the lock will be unlocked, when the 4 Keys connected to "A, B, C, D" are pushed in the right order. If any Key other than the correct Key is pushed, then gate 1 is knocked out of the stack, and the code entry fails. Pin 1 which is held high by R4, this 'enables' gate 1. When the Key connected to 'A' is pressed, the output at Pin 3 will go high. This output does two jobs. It locks itself 'ON' through R2 and it 'Enables' gate 2, by Pin 5, high. In the similar way, when the Keys connected to 'B', 'C', 'D' are pressed in order they lock themselves 'ON' and 'Enables' the next gate.

But when D is pressed, it does the same as other pins and also, at pin 10, turns Q4 ON. This takes the base of Q5 to ground, switching it off and letting the relay drop out. This switches the alarm off and unlocks the lock.

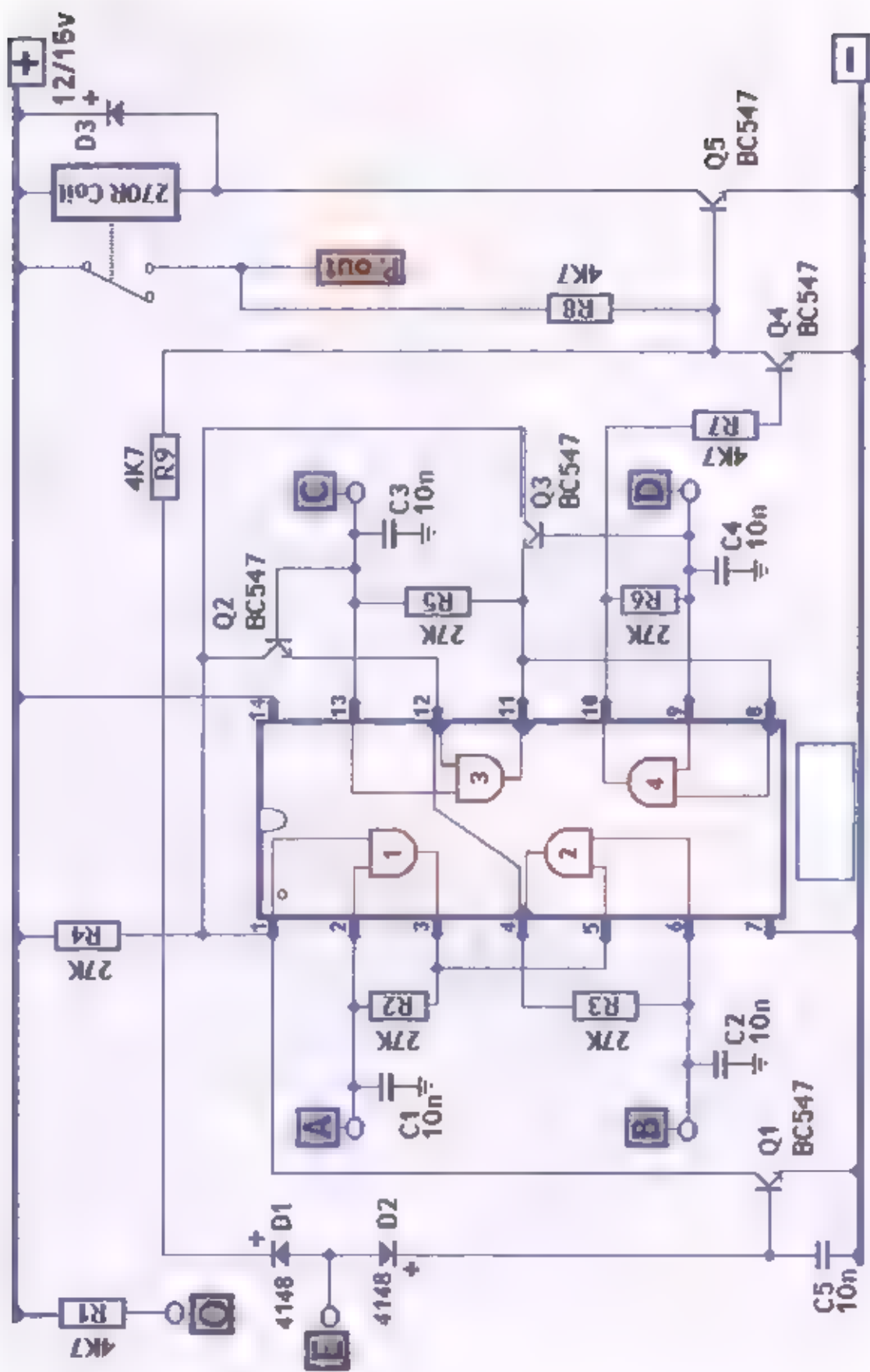
Whenever a key which is connected to 'E' is pressed, pin 1 takes low and the circuit is reset. In addition, if 'E' or 'D' is pressed out of sequence, then Q2 or Q3 will take pin 1 low and the circuit will reset. Thus nothing will happen until 'A' is pressed. Then if any key other than 'B' is pressed, the circuit will reset. The same reasoning applies to 'C' and 'D'.

II Card Drive

The ports 'A, B, C, D, E' of the 'Main System Circuit' are connected to the five narrator pins of the Card Drive. These pins read the data on the card and send the analyzed data from card drive to the Key pad through a 10 line data cable.

III Key Pad

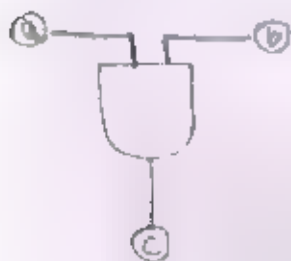
We are using a Keys Keypad which will get the input from the cable and process with the key processing units and send the signals to the 'I/O' port of the 'Main System Circuit'.



The Basic of "AND" gates and

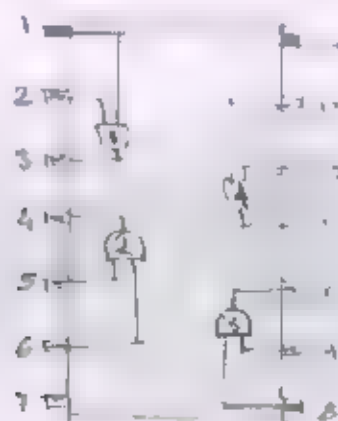
Our IC

- * CMOS 4081
- * Quad 2 input "AND" gate
- * This IC consist of four 'AND' gates.



<u>a</u>	+	<u>b</u>	=	<u>c</u>
0	+	0	=	0
0	+	1	=	0
1	+	0	=	0
1	+	1	=	1

- * If both the input of the gate is high then the output will be high.
At any other cases the output will be low.



- * There are four 'And' gates in this IC.

We thank you all...

Mr. Ron J , Electrical Engineer - Germany ,
for the Resetting Part of M.S.C

Mr. F.A. Faiz, Engineer - Canada (Brilliant),
for providing us the PCB Designing Software
Parents of Vijayam,

for providing us the internet facilities
'E-panai' Multimedia Creations ,
for designing the presentation.

'Asgon Systems' ,
for designing the coverpage and
for making the presentation CD.

All our Parents,
All others who had helped us in any other
forms.

We thank you all, you are
the people who had made
our efforts success.

Reference

The art of Electronics - 2nd Edition - 1995
by Paul Horowitz and Winfield Hill
Cambridge University Press

Design and Technology - 2nd Edition - 1995
Cambridge University Press

Basic Electronics for Tomorrow's World
by Len Joens - 2nd Edition - 1996
Cambridge University Press

Macmillan College Workout Series - Electronics
by Cr. Waterworth.

"mitedu" Website
by Ron J

Group
Life skills Development Project (Individual/Group)

Name of Child: Grade: Year:

Go/Royal College, Colombo 07.

Topic : Viva: Security Systems (An Electronic Device)

Guidelines and requirements -

1. Selection of Project:

		A	B	C	D	E
Objectives	relevance, knowledge on topic, expected, standard	✓				
Planning	whether methodical	✓				

2. Sources and resources

	A	B	C	D	E
Selection of human resources	✓				
Selection of material resources	✓				
Obtaining data	✓				

3. Process

	A	B	C	D	E
working within time frame work	✓				
field work back/observation/ application of graphs, charts etc.	✓				
teamwork/integration	✓				
decision making/following instructions	✓				

4. Results

	A	E	C	D	S
over all appearance/Service	✓				
Project Report (finishing/contents)	✓				
Structure conclusions and suggestions	✓				
Total evaluations	A				

Special Remarks:

I certify that above mentioned student/group of students has completed the project.

Signature

Teacher in charge-Projects

Project Team Co-ordinator

Date:

Official Frank of the Principal

Notes -

A - Excellent

C - satisfactory

D - good

D - can be improved

E - not satisfactory

The above guide lines be followed in evaluating the individual/group project report.

It should be a continuous assessment from the beginning to the end.

N.A./-

